DATE:11.11.14

**->ALGORITHM 1A:**

Write algorithms to implement single linked list**.**Your algorithm should have routines for the following operations:-

1. Creation of list

**Step 1: -**[Initially list is empty]

Start=NULL

**Step 2:-** [Allocate space to newly created list]

Ptr=Create a node

**Step 3:-** [Assign address of first node to start pointer]

Start=Ptr

**Step 4:-** [Assign value to the info of the node]

1. Node→info=data
2. Ptr=Ptr→next

**Step 5:-** Ptr=Create a node

**Step 6:-** Repeat step 4 and 5 till the desired number of nodes is reached

**Step 7:-[**Assign NULL to the address part of the last node of the list]

Node→next=NULL

**Step 8:-[**Return the created node]

Return (Start)

**Step 9:-**End

1. Find the sum and average and standard deviations of the elements in the list

**Step 1:-[**Initialise pointer variable to Ptr]

Ptr=Start

**Step 2:-**If(Ptr=NULL)Then

i.Print “List is Empty” and Exit

[End of If]

**Step 3:-**Initialize sum=0,a=0,n=0,ave=0.0

**Step 4:-**While(NOT Ptr=NULL)

i.a=Ptr→info

ii.sum=sum+a

iii.Ptr=Ptr→next

iv.Increment n by 1

[End of While loop]

**Step 5:-**ave=sum/n

**Step 6:-**Print sum , ave

**Step 7:-**End

1. Find the maximum and minimum of the nodes

**Step 1:- [**Initialise pointer variable to Ptr]

Ptr=Start

**Step 2:-**If(Ptr=NULL)Then

i.Print “List is Empty” and Exit

[End of If]

**Step 3:-**Initialise max=Ptr→info,min=Ptr→info

**Step 4:-** While(NOT Ptr=NULL)

i.a=Ptr→info

ii.If(min>a)Then

1. min=a

[End of If]

iii.If(max<a)Then

1. max=a

[End of If]

iv.Ptr=Ptr→next

[End of While loop]

**Step 5:-**Print min,max

**Step 6:-**End

1. Sort the list

**Step 1:- [**Initialise pointer variable to Ptr]

Ptr=Start

**Step 2:-**If(Ptr=NULL)Then

i.Print “List is Empty” and Exit

[End of If]

**Step 3:-**Initialise =Ptr→info,min=Ptr→info

**Step 4:-** While(NOT Ptr=NULL)

i.a=Ptr→info

ii.If(min>a)Then

1. min=a

[End of If]

iii.If(max<a)Then

1. max=a

[End of If]

iv.Ptr=Ptr→next

[End of While loop]